

WHAT IS CLAIMED IS:

1. A liquid crystal display device, comprising:

(a) a first substrate including a thin film transistor, a data line, a pixel
5 electrode, and a common electrode;

(b) a second substrate; and

(c) liquid crystal sandwiched between said first and second substrates,

wherein an image signal is applied to said thin film transistor through said
data line to generate an electric field between said pixel electrode receiving said
10 image signal and said common electrode such that said liquid crystal is rotated
by said electric field in a plane which is in parallel with said first substrate, and
said first substrate includes:

an electrically insulating inorganic film covering said data line therewith;

a first island-shaped electrically insulating organic film formed on said
15 electrically insulating inorganic film above said data line; and

a shield common electrode covering said first island-shaped electrically
insulating organic film therewith and overlapping said data line when viewed
vertically.

20 2. The liquid crystal display device as set forth in claim 1, wherein said first
substrate further includes:

a gate line through which one of thin film transistors is selected;

a gate line terminal electrode to which said gate line is electrically
connected in a marginal area of said first substrate;

25 a data line terminal electrode to which said data line is electrically
connected in said marginal area;

a second island-shaped electrically insulating organic film formed above
said gate line terminal electrode, said second island-shaped electrically
insulating organic film being formed concurrently with said first island-shaped

electrically insulating organic film;

a third island-shaped electrically insulating organic film formed above said data line terminal electrode, said third island-shaped electrically insulating organic film being formed concurrently with said first island-shaped electrically
5 insulating organic film;

a gate terminal extension electrode formed concurrently with said common electrode above said second island-shaped electrically insulating organic film, said gate line terminal electrode being electrically connected to said gate terminal extension electrode; and

10 a data terminal extension electrode formed concurrently with said common electrode above said third island-shaped electrically insulating organic film, said data line terminal electrode being electrically connected to said data terminal extension electrode.

15 3. The liquid crystal display device as set forth in claim 1, wherein said first substrate further includes:

a gate line terminal underlying electrode formed below said second island-shaped electrically insulating organic film, and making direct contact with said gate line terminal electrode; and

20 a data line terminal underlying electrode formed below said third island-shaped electrically insulating organic film, and making direct contact with said data line terminal electrode,

and wherein said second island-shaped electrically insulating organic film is sandwiched between said gate line extension electrode and said gate line
25 terminal underlying electrode, and said third island-shaped electrically insulating organic film is sandwiched between said data line extension electrode and said data line terminal underlying electrode.

4. The liquid crystal display device as set forth in claim 1, wherein said first

substrate further includes:

a gate line through which one of thin film transistors is selected;

a gate line terminal electrode to which said gate line is electrically connected in a marginal area of said first substrate;

5 a data line terminal electrode to which said data line is electrically connected in said marginal area;

a gate terminal extension electrode formed concurrently with said common electrode above said electrically insulating inorganic film, said gate line terminal electrode being electrically connected to said gate terminal extension electrode;

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a data terminal extension electrode formed concurrently with said common electrode above said electrically insulating inorganic film, said data line terminal electrode being electrically connected to said data terminal extension electrode.

15 5. The liquid crystal display device as set forth in claim 4, wherein said first substrate further includes:

a first electrically conductive transparent layer formed between said gate line terminal electrode and said gate terminal extension electrode both of which are electrically connected to each other; and

20 a second electrically conductive transparent layer formed between said data line terminal electrode and said data terminal extension electrode both of which are electrically connected to each other.

25 6. The liquid crystal display device as set forth in claim 4, wherein said first substrate further includes:

a first electrically conductive opaque layer formed between said gate line terminal electrode and said gate terminal extension electrode both of which are electrically connected to each other; and

a second electrically conductive opaque layer formed between said data line

terminal electrode and said data terminal extension electrode both of which are electrically connected to each other.

7. The liquid crystal display device as set forth in claim 4, wherein said first
5 substrate further includes:

a first multi-layer comprised of an electrically conductive transparent layer and an electrically conductive opaque layer, and formed between said gate line terminal electrode and said gate terminal extension electrode both of which are electrically connected to each other; and

10 a second multi-layer comprised of an electrically conductive transparent layer and an electrically conductive opaque layer, and formed between said data line terminal electrode and said data terminal extension electrode both of which are electrically connected to each other.

15 8. The liquid crystal display device as set forth in claim 1, wherein said shield common electrode is comprised of an electrically conductive transparent film.

20 9. The liquid crystal display device as set forth in claim 1, wherein said shield common electrode has a multi-layered structure comprised of an electrically conductive transparent layer and an electrically conductive opaque layer

25 10. The liquid crystal display device as set forth in claim 1, wherein said pixel electrode extends in parallel with said common electrode, and said pixel and common electrodes are formed in a common layer.

11. The liquid crystal display device as set forth in claim 1, wherein said pixel electrode extends in parallel with said common electrode, and said pixel and

common electrodes are formed in separate layers.

12. The liquid crystal display device as set forth in claim 1, wherein said pixel electrode extends in parallel with said common electrode, each of said pixel and common electrodes is comprised of a zigzag-shaped electrode, and each of said data line and said first island-shaped electrically insulating organic film is comprised of a zigzag-shaped electrode extending in parallel with said zigzag-shaped electrode of which each of said pixel and common electrodes is comprised.

13. The liquid crystal display device as set forth in claim 1, wherein said pixel electrode extends in parallel with said common electrode, each of said pixel and common electrodes is comprised of a zigzag-shaped electrode, and each of said data line and said first island-shaped electrically insulating organic film is comprised of first portions extending in almost parallel with said pixel and common electrodes and second portions extending in almost parallel with a rubbing direction.

14. The liquid crystal display device as set forth in claim 1, wherein said first island-shaped electrically insulating organic film is formed further on an electrically insulating inorganic film formed on said gate line, and is covered with said shield common electrode.

15. The liquid crystal display device as set forth in claim 14, wherein said first island-shaped electrically insulating organic film is formed further on an electrically insulating inorganic film formed on said thin film transistor, and is covered with said shield common electrode.

16. The liquid crystal display device as set forth in claim 1, wherein said

first island-shaped electrically insulating organic film is formed further on an electrically insulating inorganic film formed on said data line in an area other than an area around said gate line, and is covered with said shield common electrode.

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17. The liquid crystal display device as set forth in claim 16, wherein said shield common electrodes in pixels vertically adjacent to each other and controlled through separate scanning lines are electrically connected to each other through an electrically conductive layer of which said shield common electrodes are comprised and which does not overlap said data line.

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18. The liquid crystal display device as set forth in claim 17, wherein said electrically conductive layer through which said shield common electrodes in pixels vertically adjacent to each other are electrically connected to each other overlaps said gate line by 60% or more in each of pixels which gate line is not shielded by any other electrically conductive layers.

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19. The liquid crystal display device as set forth in claim 1, wherein said first island-shaped electrically insulating organic film is composed of novolak resin.

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20. The liquid crystal display device as set forth in claim 1, wherein said first island-shaped electrically insulating organic film is covered at its surface facing said liquid crystal with said shield common electrode.

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21. The liquid crystal display device as set forth in claim 1, wherein said second substrate includes a black matrix layer, a color layer and a planarized layer covering said black matrix layer and said color layer therewith and having a thickness equal to or greater than 1.5 micrometers.

22. The liquid crystal display device as set forth in claim 1, wherein said second substrate includes a black matrix layer having a resistivity equal to or greater than $1\text{E}9 \ \Omega \cdot \text{cm}$.

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23. The liquid crystal display device as set forth in claim 1, wherein said second substrate includes a light-shielding film located facing said data line, said light-shielding film having a multi-layered structure including two color layers having colors different from each other.

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24. A method of fabricating a liquid crystal display device including a first substrate, a second substrate, and liquid crystal sandwiched between said first and second substrates, said first substrate including a gate line, a data line intersecting with said gate line, a pixel electrode, a common electrode extending in parallel with said pixel electrode, and a plurality of thin film transistors located at intersections of said gate line and said data line, said pixel electrode being fabricated concurrently with a source electrode of each of said thin film transistors,

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said method including the step of:

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forming said common electrode so as to be closer to said liquid crystal than said data line, to overlap said data line, and to have a shield common electrode which covers a first island-shaped electrically insulating organic film formed on an electrically insulating inorganic film formed above said data line.

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25. The method as set forth in claim 24, wherein said first island-shaped electrically insulating organic film is covered at its surface facing said liquid crystal with said shield common electrode.

26. The method as set forth in claim 25, wherein said first island-shaped

electrically insulating organic film is composed of novolak resin, and further including the step of baking said first island-shaped electrically insulating organic film at a temperature in the range of 200 to 270 degrees centigrade both inclusive for 30 to 120 minutes both inclusive.

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27. The method as set forth in claim 26, further including the step of thermally annealing said first island-shaped electrically insulating organic film at a temperature in the range of 100 to 150 degrees centigrade both inclusive for 30 seconds to 15 minutes both inclusive before said first island-shaped electrically insulating organic film is baked.

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28. The method as set forth in claim 26, wherein said first island-shaped electrically insulating organic film is baked at a temperature-raising rate of 5 to 15 degrees per a minute both inclusive.

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29. The method as set forth in claim 26, wherein said first island-shaped electrically insulating organic film is heated at a fixed temperature in the range of 100 to 150 degrees centigrade both inclusive for a certain period of time before said first island-shaped electrically insulating organic film is baked at a temperature in the range of 200 to 270 degrees centigrade both inclusive.

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30. A method of fabricating a liquid crystal display device including a first substrate, a second substrate, and liquid crystal sandwiched between said first and second substrates, said first substrate including a gate line, a data line intersecting with said gate line, a pixel electrode being electrically connected to a source electrode of a thin film transistor, a common electrode extending in parallel with said pixel electrode, and a plurality of thin film transistors located at intersections of said gate line and said data line,

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said method including the steps of:

forming said common electrode so as to be closer to said liquid crystal than said data line, to overlap said data line, and to have a shield common electrode which covers a first island-shaped electrically insulating organic film formed on an electrically insulating inorganic film formed above said data line, and

5 forming said pixel electrode concurrently with said common electrode.

31. The method as set forth in claim 30, wherein said first island-shaped electrically insulating organic film is covered at its surface facing said liquid crystal with said shield common electrode.

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32. The method as set forth in claim 31, wherein said first island-shaped electrically insulating organic film is composed of novolak resin, and further including the step of baking said first island-shaped electrically insulating organic film at a temperature in the range of 200 to 270 degrees centigrade both inclusive for 30 to 120 minutes both inclusive.

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33. The method as set forth in claim 32, further including the step of thermally annealing said first island-shaped electrically insulating organic film at a temperature in the range of 100 to 150 degrees centigrade both inclusive for 30 seconds to 15 minutes both inclusive before said first island-shaped electrically insulating organic film is baked.

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34. The method as set forth in claim 32, wherein said first island-shaped electrically insulating organic film is baked at a temperature-raising rate of 5 to 15 degrees per a minute both inclusive.

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35. The method as set forth in claim 32, wherein said first island-shaped electrically insulating organic film is heated at a fixed temperature in the range of 100 to 150 degrees centigrade both inclusive for a certain period of time before

said first island-shaped electrically insulating organic film is baked at a temperature in the range of 200 to 270 degrees centigrade both inclusive.